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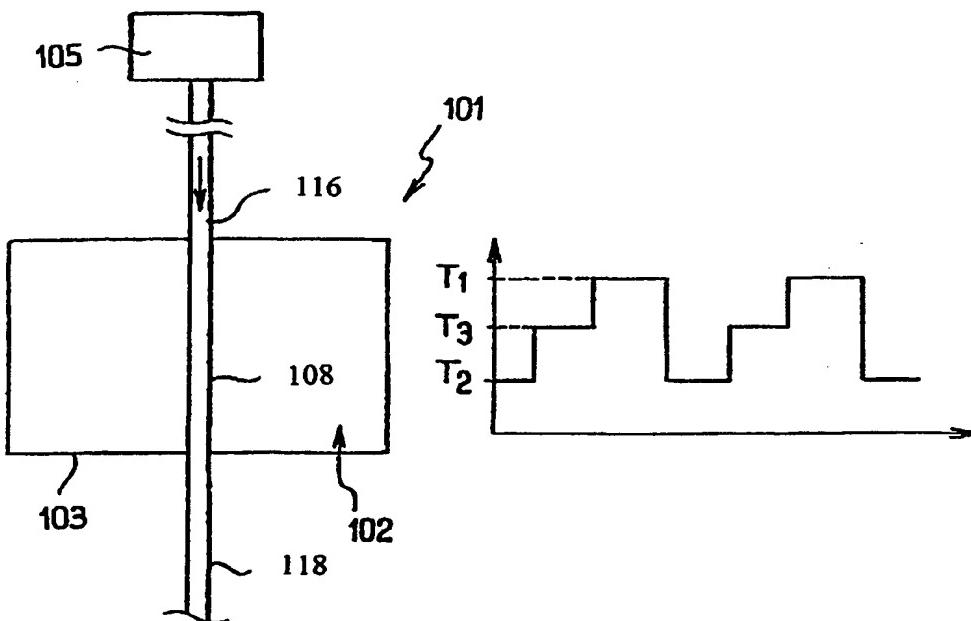
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*[Continued on next page]*

(54) Title: INTEGRATION OF BIOCHEMICAL PROTOCOLS IN A CONTINUOUS FLOW MICROFLUIDIC DEVICE



**WO 01/07159 A3**



(57) Abstract: Provided is a microfluidic device comprising a microfluidic substrate comprising at least one pathway for sample flow; and at least one thermal transfer member which is capable of cycling between at least two temperatures. The thermal transfer member is adapted to heat at least a portion of the sample pathway while a sample is flowing along said at least a portion of said sample pathway. Provided also are methods of carrying out biochemical protocols using such a device.



IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG,  
CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

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*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

# INTERNATIONAL SEARCH REPORT

International Application No

PC IB 00/01137

A. CLASSIFICATION OF SUBJECT MATTER	IPC 7 C12Q1/68	G01N35/08	B01L7/00	B01L3/00
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According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B01L G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2 325 464 A (BRUKER FRANZEN ANALYTIK GMBH) 25 November 1998 (1998-11-25) cited in the application abstract; claims 1-10; figures 1-4 page 7, line 6 - line 30 page 9, line 7 -page 10, line 28 page 11, line 7 - line 28 page 13, line 3 -page 14, line 24 --- -/-	1-40

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

\* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority, claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
13 November 2000	15.02.01

Name and mailing address of the ISA  
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## INTERNATIONAL SEARCH REPORT

International Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	KOPP ET AL: "chemical amplification:continuous flow PCR on a chip" SCIENCE,US,AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE,, vol. 280, no. 280, 15 May 1998 (1998-05-15), pages 1046-1048-1048, XP002107956 ISSN: 0036-8075 page 1046; figure 1B ---	1-40
P,X	WO 00 23190 A (CLERC JEAN FREDERIC ;COMMISSARIAT ENERGIE ATOMIQUE (FR); FOUILLET) 27 April 2000 (2000-04-27) page 3, line 10 - line 22 page 5, line 10 - line 17 page 5, line 23 - line 28 page 11, line 18 - line 22 page 13, line 10 - line 22 page 14, line 6 - line 12; figure A page 19, line 10 - line 15 ---	22-26,28
P,A	page 14, line 6 - line 12; figure A page 19, line 10 - line 15 ---	12
A	EP 0 636 413 A (PERKIN ELMER CORP) 1 February 1995 (1995-02-01)	1
X	column 13, line 38 -column 14, line 10; figure 2 ---	22
Y,P	WO 99 41015 A (POSER SIEGFRIED ;SCHULZ TORSTEN (DE); INST PHYSIKALISCHE HOCHTECHN) 19 August 1999 (1999-08-19) page 5, line 12 - line 32; figures ---	22
Y	WO 96 15269 A (UNIV PENNSYLVANIA) 23 May 1996 (1996-05-23) page 25, line 17 - line 27; figures page 37, line 16 -page 38, line 29; figures 19-22 page 48, line 24 - line 25; figure 10 page 49, line 33 -page 50, line 6; figure 10 page 49, line 30 - line 32; figure 10 ---	22
A	US 5 270 183 A (CORBETT JOHN M ET AL) 14 December 1993 (1993-12-14) column 6, line 20 - line 24 column 8, line 58 - line 62; figures 1,2 ---	12,15
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## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/IB 00/01137

### Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.: because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
  
3.  Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

### Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1.  As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
  
2.  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
  
3.  As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
  
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-40

#### Remark on Protest

- The additional search fees were accompanied by the applicant's protest.  
 No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-40

devices and methods for thermocycling samples flowing continuously along channels

2. Claims: 41-51

process for detecting or identifying in continuous flow nucleotides using microsequencing reagent

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International Application No

PC iB 00/01137

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Information on patent family members

International Application No

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